



ANALYTICAL REPORT

Alaska State Environmental Health Laboratory
5251 Dr. Martin Luther King Jr. Avenue
Anchorage, AK 99507
www.dec.alaska.gov/eh/lab

Work Order Number: 2212014
Project Name: 2022 Kenai River Cu/Zn re-testing

For:

AKDEC Division of Water
555 Cordova Street
Anchorage, AK 99501-2617

Attn: Terri Lomax

A handwritten signature in blue ink that reads "Steve R. Crupi".

Steve R Crupi
Quality Assurance Manager
steve.crupi@alaska.gov

Report Date: 01/30/2023



ALASKA
Department of
Environmental
Conservation

The results in this report apply to the samples analyzed in accordance with the sample submission form. This analytical report must be reproduced in its entirety. This report has been electronically signed and authorized by the signatory.

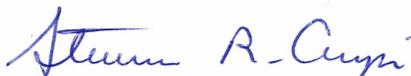
Sample Summary

Client: AKDEC Division of Water
Project: 2022 Kenai River Cu/Zn re-testing

Work Order: 2212014
Report Date: 01/30/2023 17:13

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
2212014-01	RM 70 (Dissolved)	Water	09/08/2022	12/05/2022
2212014-02	RM 70 (Total)	Water	09/08/2022	12/05/2022
2212014-03	RM 70 DUP (Dissolved)	Water	09/08/2022	12/05/2022
2212014-04	RM 70 DUP (Total)	Water	09/08/2022	12/05/2022
2212014-05	RM 82.1 (Dissolved)	Water	09/08/2022	12/05/2022
2212014-06	RM 82.1 (Total)	Water	09/08/2022	12/05/2022
2212014-07	RM 82.1 DUP (Dissolved)	Water	09/08/2022	12/05/2022
2212014-08	RM 82.1 DUP (Total)	Water	09/08/2022	12/05/2022
2212014-09	RM 76 (Dissolved)	Water	09/08/2022	12/05/2022
2212014-10	RM 76 (Total)	Water	09/08/2022	12/05/2022
2212014-11	RM 82 (Dissolved)	Water	09/08/2022	12/05/2022
2212014-12	RM 82 (Total)	Water	09/08/2022	12/05/2022
2212014-13	Field Blank (Dissolved)	Water	09/08/2022	12/05/2022
2212014-14	Field Blank (Total)	Water	09/08/2022	12/05/2022
2212014-15	RM 20.75 (Dissolved)	Water	09/08/2022	12/05/2022
2212014-16	RM 20.75 (Total)	Water	09/08/2022	12/05/2022
2212014-17	RM 19 (Dissolved)	Water	09/08/2022	12/05/2022
2212014-18	RM 19 (Total)	Water	09/08/2022	12/05/2022
2212014-19	RM 40 (Dissolved)	Water	09/08/2022	12/05/2022
2212014-20	RM 40 (Total)	Water	09/08/2022	12/05/2022
2212014-21	RM 12.75 (Dissolved)	Water	09/08/2022	12/05/2022
2212014-22	RM 12.75 (Total)	Water	09/08/2022	12/05/2022
2212014-23	RM 31 (Dissolved)	Water	09/08/2022	12/05/2022
2212014-24	RM 31 (Total)	Water	09/08/2022	12/05/2022
2212014-25	RM 21 (Dissolved)	Water	09/08/2022	12/05/2022

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Steve R Crupi, Quality Assurance Manager

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Sample Summary

Client: AKDEC Division of Water
Project: 2022 Kenai River Cu/Zn re-testing

Work Order: 2212014
Report Date: 01/30/2023 17:13

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
2212014-26	RM 21 (Total)	Water	09/08/2022	12/05/2022
2212014-27	RM 19.1 (Dissolved)	Water	09/08/2022	12/05/2022
2212014-28	RM 19.1 (Total)	Water	09/08/2022	12/05/2022
2212014-29	RM 19.1 DUP (Dissolved)	Water	09/08/2022	12/05/2022
2212014-30	RM 19.1 DUP (Total)	Water	09/08/2022	12/05/2022
2212014-31	RM 21.1 (Dissolved)	Water	09/08/2022	12/05/2022
2212014-32	RM 21.1 (Total)	Water	09/08/2022	12/05/2022
2212014-33	RM 5 (Dissolved)	Water	09/08/2022	12/05/2022
2212014-34	RM 5 (Total)	Water	09/08/2022	12/05/2022
2212014-35	RM 10.1 (Dissolved)	Water	09/08/2022	12/05/2022
2212014-36	RM 10.1 (Total)	Water	09/08/2022	12/05/2022
2212014-37	RM 23 (Dissolved)	Water	09/08/2022	12/05/2022
2212014-38	RM 23 (Total)	Water	09/08/2022	12/05/2022
2212014-39	RM 40 DUP (Dissolved)	Water	09/08/2022	12/05/2022
2212014-40	RM 40 DUP (Total)	Water	09/08/2022	12/05/2022
2212014-41	RM 12.5 (Dissolved)	Water	11/03/2022	12/05/2022
2212014-42	RM 12.5 (Total)	Water	11/03/2022	12/05/2022
2212014-43	RM 12.5 DUP (Dissolved)	Water	11/03/2022	12/05/2022
2212014-44	RM 12.5 DUP (Total)	Water	11/03/2022	12/05/2022
2212014-45	Field Blank (Dissolved)	Water	11/03/2022	12/05/2022
2212014-46	Field Blank (Total)	Water	11/03/2022	12/05/2022
2212014-47	RM 70 (Dissolved)	Water	11/03/2022	12/05/2022
2212014-48	RM 70 (Total)	Water	11/03/2022	12/05/2022
2212014-49	RM 70 DUP (Dissolved)	Water	11/03/2022	12/05/2022
2212014-50	RM 70 DUP (Total)	Water	11/03/2022	12/05/2022
2212014-51	RM 23 (Dissolved)	Water	11/03/2022	12/05/2022
2212014-52	RM 23 (Total)	Water	11/03/2022	12/05/2022

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Sample Summary

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Project: 2022 Kenai River Cu/Zn re-testing

Work Order: 2212014
Report Date: 01/30/2023 17:13

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
2212014-53	RM 23 DUP (Dissolved)	Water	11/03/2022	12/05/2022
2212014-54	RM 23 DUP (Total)	Water	11/03/2022	12/05/2022
2212014-55	RM 21 (Dissolved)	Water	11/03/2022	12/05/2022
2212014-56	RM 21 (Total)	Water	11/03/2022	12/05/2022
2212014-57	RM 21 DUP (Dissolved)	Water	11/03/2022	12/05/2022
2212014-58	RM 21 DUP (Total)	Water	11/03/2022	12/05/2022
2212014-59	RM 70 (Dissolved)	Water	09/08/2022	12/13/2022
2212014-60	RM 70 Dup (Dissolved)	Water	09/08/2022	12/13/2022
2212014-61	Field Blank (Dissolved)	Water	09/08/2022	12/13/2022
2212014-62	RM 82.1 DUP (Dissolved)	Water	09/08/2022	12/13/2022
2212014-63	RM 40 (Dissolved)	Water	09/08/2022	12/13/2022
2212014-64	RM 40 Dup (Dissolved)	Water	09/08/2022	12/13/2022
2212014-65	RM 12.75 (Dissolved)	Water	09/08/2022	12/13/2022
2212014-66	RM 76 (Dissolved)	Water	09/08/2022	12/13/2022

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Methods

All samples were analyzed and conform with the following methods unless otherwise specified in the Case Narrative:

EPA 200.8/200.2

Case Narrative

The base LOQ for copper and zinc is 5 ppb. Any elevated MRLs are due to limited sample volume.

Reporting is set up to report J-flag values (i.e. values between the MDL and MRL).

The samples are distributed over four lab batches; B23A045, B23A046, B23A060, and B23A065.

Total and dissolved pairings often have different MRLs (e.g. RM 70 total MRL = 5 ppb, dissolved MRL = 14 ppb) due to varying degrees of limited sample volume available.

Seven locations have total results with no corresponding dissolved results. The reason for each of these gaps is having to reject the submitted dissolved sample portion due to insufficient sample volume. Affected locations are RM21, RM12.5, RM12.5 DUP, Field Blank (11/3/22), RM23 DUP, RM21, RM21 DUP. There are other instances of rejected sample portions; however, those scenarios were mitigated by a second sample portion submitted on 12/13/22.

Nine locations have anomalous total vs. dissolved results and are tabulated below. Values in parentheses are MRLs. All values are in terms of ppb.

RM 70 - Zn (*total*) 39 (5) vs. (*dissolved*) 53 (14)

RM70 DUP- Zn (*total*) 36 vs. (*dissolved*) 40 = This comparison is within acceptable random error of laboratory testing.

RM82.1 DUP- Zn (*total*) 39 (5) vs. (*dissolved*) 64 (6.9)

RM76 - Zn (*total*) 29 (5) vs. (*dissolved*) 44 (7.2)

RM82 - Cu (*total*) ND (5) vs. (*dissolved*) 6.1 (10) = This comparison is within acceptable random error given proximities to MRLs.

Zn (*total*) 25 (5) vs. (*dissolved*) 45 (10)

RM20.75 - Cu (*total*) ND (5) vs. (*dissolved*) 8.8 (15)

RM19 - Cu (*total*) ND (5) vs. (*dissolved*) 19 (9.9)

RM40 - Zn (*total*) 61 (5) vs. (*dissolved*) 64 (5) = This comparison is within acceptable random error of laboratory testing.

RM19.1 DUP -

Zn (*total*) 12 (5) vs. (*dissolved*) 37 (14)

The total vs. dissolved comparisons for all other site locations are as expected.

Eight MRL Checks (lab matrix control spikes at one-half the projected MRL) were tested in the first lab batch. The purpose of these samples was to verify the MDL/MRL sets for Cu and Zn.

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Notes and Definitions

J Detected but below the Reporting Limit: therefore, result is an estimated concentration

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Analytical Data

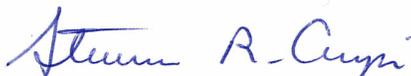
Client: AKDEC Division of Water
Project: 2022 Kenai River Cu/Zn re-testing

Work Order: 2212014
Report Date: 01/30/23 17:13

Client Sample ID: RM 70 (Dissolved)
Lab Sample ID: 2212014-01
Date Collected: 09/08/22 15:00
Date Received: 12/05/22 15:00
Sampled By:
Temperature at Receipt: 19.3 degrees C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Copper	REJECTED	0.50	ppb	1	B23A055	19-Jan-23	19-Jan-23	EPA 200.8/200.2	
Zinc	REJECTED	0.50	ppb	"	"	"	"	"	

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Analytical Data

Client: AKDEC Division of Water
Project: 2022 Kenai River Cu/Zn re-testing

Work Order: 2212014
Report Date: 01/30/23 17:13

Client Sample ID: RM 70 (Total)
Lab Sample ID: 2212014-02
Date Collected: 09/08/22 15:00
Date Received: 12/05/22 15:00
Sampled By:
Temperature at Receipt: 19.3 degrees C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Copper	ND	5.0	ppb	1	B23A045	18-Jan-23	19-Jan-23	EPA 200.8/200.2	
Zinc	39	5.0	ppb	"	"	"	"	"	

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Analytical Data

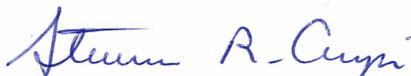
Client: AKDEC Division of Water
Project: 2022 Kenai River Cu/Zn re-testing

Work Order: 2212014
Report Date: 01/30/23 17:13

Client Sample ID: RM 70 DUP (Dissolved)
Lab Sample ID: 2212014-03
Date Collected: 09/08/22 15:00
Date Received: 12/05/22 15:00
Sampled By:
Temperature at Receipt: 19.3 degrees C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Copper	REJECTED	0.50	ppb	1	B23A055	19-Jan-23	19-Jan-23	EPA 200.8/200.2	
Zinc	REJECTED	0.50	ppb	"	"	"	"	"	

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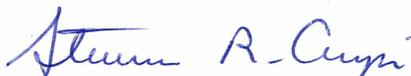
Client: AKDEC Division of Water
Project: 2022 Kenai River Cu/Zn re-testing

Work Order: 2212014
Report Date: 01/30/23 17:13

Client Sample ID: RM 70 DUP (Total)
Lab Sample ID: 2212014-04
Date Collected: 09/08/22 15:00
Date Received: 12/05/22 15:00
Sampled By:
Temperature at Receipt: 19.3 degrees C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Copper	ND	5.1	ppb	1	B23A045	18-Jan-23	19-Jan-23	EPA 200.8/200.2	
Zinc	36	5.1	ppb	"	"	"	"	"	

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Analytical Data

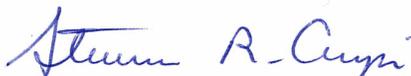
Client: AKDEC Division of Water
Project: 2022 Kenai River Cu/Zn re-testing

Work Order: 2212014
Report Date: 01/30/23 17:13

Client Sample ID: RM 82.1 (Dissolved)
Lab Sample ID: 2212014-05
Date Collected: 09/08/22 15:00
Date Received: 12/05/22 15:00
Sampled By:
Temperature at Receipt: 19.3 degrees C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Copper	ND	13	ppb	1	B23A065	25-Jan-23	25-Jan-23	EPA 200.8/200.2	
Zinc	41	13	ppb	"	"	"	"	"	

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Analytical Data

Client: AKDEC Division of Water
Project: 2022 Kenai River Cu/Zn re-testing

Work Order: 2212014
Report Date: 01/30/23 17:13

Client Sample ID: RM 82.1 (Total)
Lab Sample ID: 2212014-06
Date Collected: 09/08/22 15:00
Date Received: 12/05/22 15:00
Sampled By:
Temperature at Receipt: 19.3 degrees C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Copper	ND	5.0	ppb	1	B23A045	18-Jan-23	19-Jan-23	EPA 200.8/200.2	
Zinc	72	5.0	ppb	"	"	"	"	"	

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Analytical Data

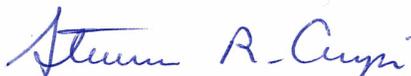
Client: AKDEC Division of Water
Project: 2022 Kenai River Cu/Zn re-testing

Work Order: 2212014
Report Date: 01/30/23 17:13

Client Sample ID: RM 82.1 DUP (Dissolved)
Lab Sample ID: 2212014-07
Date Collected: 09/08/22 15:00
Date Received: 12/05/22 15:00
Sampled By:
Temperature at Receipt: 19.3 degrees C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Copper	REJECTED	0.50	ppb	1	B23A055	19-Jan-23	19-Jan-23	EPA 200.8/200.2	
Zinc	REJECTED	0.50	ppb	"	"	"	"	"	

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Analytical Data

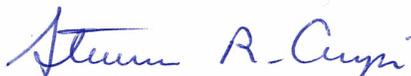
Client: AKDEC Division of Water
Project: 2022 Kenai River Cu/Zn re-testing

Work Order: 2212014
Report Date: 01/30/23 17:13

Client Sample ID: RM 82.1 DUP (Total)
Lab Sample ID: 2212014-08
Date Collected: 09/08/22 15:00
Date Received: 12/05/22 15:00
Sampled By:
Temperature at Receipt: 19.3 degrees C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Copper	ND	5.0	ppb	1	B23A045	18-Jan-23	19-Jan-23	EPA 200.8/200.2	
Zinc	39	5.0	ppb	"	"	"	"	"	

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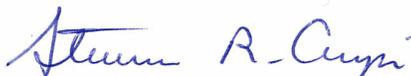
Client: AKDEC Division of Water
Project: 2022 Kenai River Cu/Zn re-testing

Work Order: 2212014
Report Date: 01/30/23 17:13

Client Sample ID: RM 76 (Dissolved)
Lab Sample ID: 2212014-09
Date Collected: 09/08/22 15:00
Date Received: 12/05/22 15:00
Sampled By:
Temperature at Receipt: 19.3 degrees C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Copper	REJECTED	0.50	ppb	1	B23A055	19-Jan-23	19-Jan-23	EPA 200.8/200.2	
Zinc	REJECTED	0.50	ppb	"	"	"	"	"	

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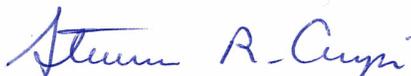
Client: AKDEC Division of Water
Project: 2022 Kenai River Cu/Zn re-testing

Work Order: 2212014
Report Date: 01/30/23 17:13

Client Sample ID: RM 76 (Total)
Lab Sample ID: 2212014-10
Date Collected: 09/08/22 15:00
Date Received: 12/05/22 15:00
Sampled By:
Temperature at Receipt: 19.3 degrees C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Copper	ND	5.0	ppb	1	B23A045	18-Jan-23	19-Jan-23	EPA 200.8/200.2	
Zinc	29	5.0	ppb	"	"	"	"	"	

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Client: AKDEC Division of Water
Project: 2022 Kenai River Cu/Zn re-testing

Work Order: 2212014
Report Date: 01/30/23 17:13

Client Sample ID: RM 82 (Dissolved)
Lab Sample ID: 2212014-11
Date Collected: 09/08/22 15:00
Date Received: 12/05/22 15:00
Sampled By:
Temperature at Receipt: 19.3 degrees C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Copper	6.1	10	ppb	1	B23A065	25-Jan-23	25-Jan-23	EPA 200.8/200.2	J
Zinc	45	10	ppb	"	"	"	"	"	

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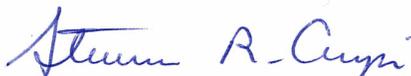
Client: AKDEC Division of Water
Project: 2022 Kenai River Cu/Zn re-testing

Work Order: 2212014
Report Date: 01/30/23 17:13

Client Sample ID: RM 82 (Total)
Lab Sample ID: 2212014-12
Date Collected: 09/08/22 15:00
Date Received: 12/05/22 15:00
Sampled By:
Temperature at Receipt: 19.3 degrees C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Copper	ND	5.0	ppb	1	B23A045	18-Jan-23	19-Jan-23	EPA 200.8/200.2	
Zinc	25	5.0	ppb	"	"	"	"	"	

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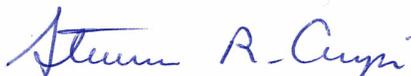
Client: AKDEC Division of Water
Project: 2022 Kenai River Cu/Zn re-testing

Work Order: 2212014
Report Date: 01/30/23 17:13

Client Sample ID: Field Blank (Dissolved)
Lab Sample ID: 2212014-13
Date Collected: 09/08/22 15:00
Date Received: 12/05/22 15:00
Sampled By:
Temperature at Receipt: 19.3 degrees C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Copper	REJECTED	0.50	ppb	1	B23A055	19-Jan-23	19-Jan-23	EPA 200.8/200.2	
Zinc	REJECTED	0.50	ppb	"	"	"	"	"	

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Client: AKDEC Division of Water
Project: 2022 Kenai River Cu/Zn re-testing

Work Order: 2212014
Report Date: 01/30/23 17:13

Client Sample ID: Field Blank (Total)
Lab Sample ID: 2212014-14
Date Collected: 09/08/22 15:00
Date Received: 12/05/22 15:00
Sampled By:
Temperature at Receipt: 19.3 degrees C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Copper	ND	5.0	ppb	1	B23A045	18-Jan-23	19-Jan-23	EPA 200.8/200.2	
Zinc	86	5.0	ppb	"	"	"	"	"	

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Client: AKDEC Division of Water
Project: 2022 Kenai River Cu/Zn re-testing

Work Order: 2212014
Report Date: 01/30/23 17:13

Client Sample ID: RM 20.75 (Dissolved)
Lab Sample ID: 2212014-15
Date Collected: 09/08/22 15:00
Date Received: 12/05/22 15:00
Sampled By:
Temperature at Receipt: 19.3 degrees C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Copper	8.8	15	ppb	1	B23A065	25-Jan-23	25-Jan-23	EPA 200.8/200.2	J
Zinc	46	15	ppb	"	"	"	"	"	

Alaska State Environmental Health Laboratory



Steve R Crupi, Quality Assurance Manager

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Analytical Data

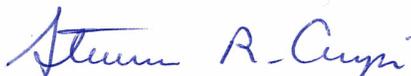
Client: AKDEC Division of Water
Project: 2022 Kenai River Cu/Zn re-testing

Work Order: 2212014
Report Date: 01/30/23 17:13

Client Sample ID: RM 20.75 (Total)
Lab Sample ID: 2212014-16
Date Collected: 09/08/22 15:00
Date Received: 12/05/22 15:00
Sampled By:
Temperature at Receipt: 19.3 degrees C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Copper	ND	5.0	ppb	1	B23A045	18-Jan-23	19-Jan-23	EPA 200.8/200.2	
Zinc	85	5.0	ppb	"	"	"	"	"	

Alaska State Environmental Health Laboratory



Steve R Crupi, Quality Assurance Manager

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Analytical Data

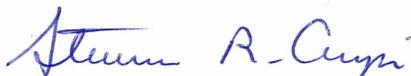
Client: AKDEC Division of Water
Project: 2022 Kenai River Cu/Zn re-testing

Work Order: 2212014
Report Date: 01/30/23 17:13

Client Sample ID: RM 19 (Dissolved)
Lab Sample ID: 2212014-17
Date Collected: 09/08/22 15:00
Date Received: 12/05/22 15:00
Sampled By:
Temperature at Receipt: 19.3 degrees C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Copper	ND	9.9	ppb	1	B23A065	25-Jan-23	25-Jan-23	EPA 200.8/200.2	
Zinc	34	9.9	ppb	"	"	"	"	"	

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Steve R Crupi, Quality Assurance Manager

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Analytical Data

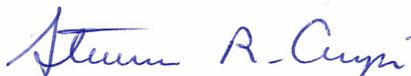
Client: AKDEC Division of Water
Project: 2022 Kenai River Cu/Zn re-testing

Work Order: 2212014
Report Date: 01/30/23 17:13

Client Sample ID: RM 19 (Total)
Lab Sample ID: 2212014-18
Date Collected: 09/08/22 15:00
Date Received: 12/05/22 15:00
Sampled By:
Temperature at Receipt: 19.3 degrees C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Copper	ND	5.0	ppb	1	B23A045	18-Jan-23	19-Jan-23	EPA 200.8/200.2	
Zinc	120	10	ppb	2	"	"	19-Jan-23	"	

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Analytical Data

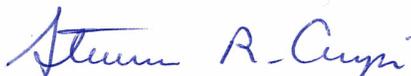
Client: AKDEC Division of Water
Project: 2022 Kenai River Cu/Zn re-testing

Work Order: 2212014
Report Date: 01/30/23 17:13

Client Sample ID: RM 40 (Dissolved)
Lab Sample ID: 2212014-19
Date Collected: 09/08/22 15:00
Date Received: 12/05/22 15:00
Sampled By:
Temperature at Receipt: 19.3 degrees C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Copper	REJECTED	0.50	ppb	1	B23A055	19-Jan-23	19-Jan-23	EPA 200.8/200.2	
Zinc	REJECTED	0.50	ppb	"	"	"	"	"	

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Analytical Data

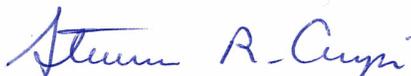
Client: AKDEC Division of Water
Project: 2022 Kenai River Cu/Zn re-testing

Work Order: 2212014
Report Date: 01/30/23 17:13

Client Sample ID: RM 40 (Total)
Lab Sample ID: 2212014-20
Date Collected: 09/08/22 15:00
Date Received: 12/05/22 15:00
Sampled By:
Temperature at Receipt: 19.3 degrees C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Copper	ND	5.0	ppb	1	B23A045	18-Jan-23	19-Jan-23	EPA 200.8/200.2	
Zinc	61	5.0	ppb	"	"	"	"	"	

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Steve R Crupi, Quality Assurance Manager

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Analytical Data

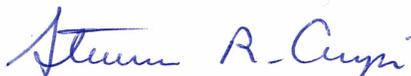
Client: AKDEC Division of Water
Project: 2022 Kenai River Cu/Zn re-testing

Work Order: 2212014
Report Date: 01/30/23 17:13

Client Sample ID: RM 12.75 (Dissolved)
Lab Sample ID: 2212014-21
Date Collected: 09/08/22 15:00
Date Received: 12/05/22 15:00
Sampled By:
Temperature at Receipt: 19.3 degrees C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Copper	REJECTED	0.50	ppb	1	B23A055	19-Jan-23	19-Jan-23	EPA 200.8/200.2	
Zinc	REJECTED	0.50	ppb	"	"	"	"	"	

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Analytical Data

Client: AKDEC Division of Water
Project: 2022 Kenai River Cu/Zn re-testing

Work Order: 2212014
Report Date: 01/30/23 17:13

Client Sample ID: RM 12.75 (Total)
Lab Sample ID: 2212014-22
Date Collected: 09/08/22 15:00
Date Received: 12/05/22 15:00
Sampled By:
Temperature at Receipt: 19.3 degrees C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Copper	ND	5.0	ppb	1	B23A045	18-Jan-23	19-Jan-23	EPA 200.8/200.2	
Zinc	80	5.0	ppb	"	"	"	"	"	

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Analytical Data

Client: AKDEC Division of Water
Project: 2022 Kenai River Cu/Zn re-testing

Work Order: 2212014
Report Date: 01/30/23 17:13

Client Sample ID: RM 31 (Dissolved)
Lab Sample ID: 2212014-23
Date Collected: 09/08/22 15:00
Date Received: 12/05/22 15:00
Sampled By:
Temperature at Receipt: 19.3 degrees C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Copper	ND	22	ppb	1	B23A065	25-Jan-23	25-Jan-23	EPA 200.8/200.2	
Zinc	51	22	ppb	"	"	"	"	"	

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Analytical Data

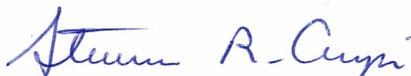
Client: AKDEC Division of Water
Project: 2022 Kenai River Cu/Zn re-testing

Work Order: 2212014
Report Date: 01/30/23 17:13

Client Sample ID: RM 31 (Total)
Lab Sample ID: 2212014-24
Date Collected: 09/08/22 15:00
Date Received: 12/05/22 15:00
Sampled By:
Temperature at Receipt: 19.3 degrees C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Copper	ND	5.0	ppb	1	B23A045	18-Jan-23	19-Jan-23	EPA 200.8/200.2	
Zinc	64	5.0	ppb	"	"	"	"	"	

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Analytical Data

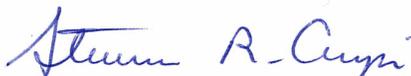
Client: AKDEC Division of Water
Project: 2022 Kenai River Cu/Zn re-testing

Work Order: 2212014
Report Date: 01/30/23 17:13

Client Sample ID: RM 21 (Dissolved)
Lab Sample ID: 2212014-25
Date Collected: 09/08/22 15:00
Date Received: 12/05/22 15:00
Sampled By:
Temperature at Receipt: 19.3 degrees C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Copper	REJECTED	0.50	ppb	1	B23A055	19-Jan-23	19-Jan-23	EPA 200.8/200.2	
Zinc	REJECTED	0.50	ppb	"	"	"	"	"	

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Analytical Data

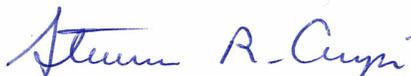
Client: AKDEC Division of Water
Project: 2022 Kenai River Cu/Zn re-testing

Work Order: 2212014
Report Date: 01/30/23 17:13

Client Sample ID: RM 21 (Total)
Lab Sample ID: 2212014-26
Date Collected: 09/08/22 15:00
Date Received: 12/05/22 15:00
Sampled By:
Temperature at Receipt: 19.3 degrees C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Copper	ND	5.0	ppb	1	B23A046	19-Jan-23	20-Jan-23	EPA 200.8/200.2	
Zinc	43	5.0	ppb	"	"	"	"	"	

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Analytical Data

Client: AKDEC Division of Water
Project: 2022 Kenai River Cu/Zn re-testing

Work Order: 2212014
Report Date: 01/30/23 17:13

Client Sample ID: RM 19.1 (Dissolved)
Lab Sample ID: 2212014-27
Date Collected: 09/08/22 15:00
Date Received: 12/05/22 15:00
Sampled By:
Temperature at Receipt: 19.3 degrees C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Copper	ND	26	ppb	1	B23A065	25-Jan-23	25-Jan-23	EPA 200.8/200.2	
Zinc	36	26	ppb	"	"	"	"	"	

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Analytical Data

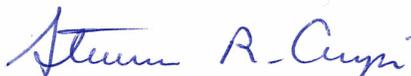
Client: AKDEC Division of Water
Project: 2022 Kenai River Cu/Zn re-testing

Work Order: 2212014
Report Date: 01/30/23 17:13

Client Sample ID: RM 19.1 (Total)
Lab Sample ID: 2212014-28
Date Collected: 09/08/22 15:00
Date Received: 12/05/22 15:00
Sampled By:
Temperature at Receipt: 19.3 degrees C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Copper	ND	5.0	ppb	1	B23A046	19-Jan-23	20-Jan-23	EPA 200.8/200.2	
Zinc	64	5.0	ppb	"	"	"	"	"	

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Analytical Data

Client: AKDEC Division of Water
Project: 2022 Kenai River Cu/Zn re-testing

Work Order: 2212014
Report Date: 01/30/23 17:13

Client Sample ID: RM 19.1 DUP (Dissolved)
Lab Sample ID: 2212014-29
Date Collected: 09/08/22 15:00
Date Received: 12/05/22 15:00
Sampled By:
Temperature at Receipt: 19.3 degrees C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Copper	ND	14	ppb	1	B23A065	25-Jan-23	25-Jan-23	EPA 200.8/200.2	
Zinc	37	14	ppb	"	"	"	"	"	

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Steve R Crupi, Quality Assurance Manager

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Analytical Data

Client: AKDEC Division of Water
Project: 2022 Kenai River Cu/Zn re-testing

Work Order: 2212014
Report Date: 01/30/23 17:13

Client Sample ID: RM 19.1 DUP (Total)
Lab Sample ID: 2212014-30
Date Collected: 09/08/22 15:00
Date Received: 12/05/22 15:00
Sampled By:
Temperature at Receipt: 19.3 degrees C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Copper	ND	5.0	ppb	1	B23A046	19-Jan-23	20-Jan-23	EPA 200.8/200.2	
Zinc	12	5.0	ppb	"	"	"	"	"	

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Analytical Data

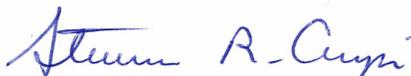
Client: AKDEC Division of Water
Project: 2022 Kenai River Cu/Zn re-testing

Work Order: 2212014
Report Date: 01/30/23 17:13

Client Sample ID: RM 21.1 (Dissolved)
Lab Sample ID: 2212014-31
Date Collected: 09/08/22 15:00
Date Received: 12/05/22 15:00
Sampled By:
Temperature at Receipt: 19.3 degrees C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Copper	ND	28	ppb	1	B23A065	25-Jan-23	25-Jan-23	EPA 200.8/200.2	
Zinc	56	28	ppb	"	"	"	"	"	

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Steve R Crupi, Quality Assurance Manager

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Analytical Data

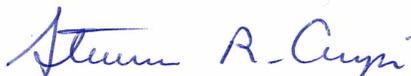
Client: AKDEC Division of Water
Project: 2022 Kenai River Cu/Zn re-testing

Work Order: 2212014
Report Date: 01/30/23 17:13

Client Sample ID: RM 21.1 (Total)
Lab Sample ID: 2212014-32
Date Collected: 09/08/22 15:00
Date Received: 12/05/22 15:00
Sampled By:
Temperature at Receipt: 19.3 degrees C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Copper	ND	5.0	ppb	1	B23A046	19-Jan-23	20-Jan-23	EPA 200.8/200.2	
Zinc	68	5.0	ppb	"	"	"	"	"	

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Steve R Crupi, Quality Assurance Manager

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Analytical Data

Client: AKDEC Division of Water
Project: 2022 Kenai River Cu/Zn re-testing

Work Order: 2212014
Report Date: 01/30/23 17:13

Client Sample ID: RM 5 (Dissolved)
Lab Sample ID: 2212014-33
Date Collected: 09/08/22 15:00
Date Received: 12/05/22 15:00
Sampled By:
Temperature at Receipt: 19.3 degrees C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Copper	ND	19	ppb	1	B23A065	25-Jan-23	25-Jan-23	EPA 200.8/200.2	
Zinc	47	19	ppb	"	"	"	"	"	

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Steve R Crupi, Quality Assurance Manager

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Analytical Data

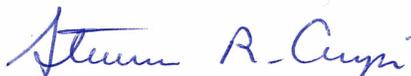
Client: AKDEC Division of Water
Project: 2022 Kenai River Cu/Zn re-testing

Work Order: 2212014
Report Date: 01/30/23 17:13

Client Sample ID: RM 5 (Total)
Lab Sample ID: 2212014-34
Date Collected: 09/08/22 15:00
Date Received: 12/05/22 15:00
Sampled By:
Temperature at Receipt: 19.3 degrees C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Copper	2.2	5.0	ppb	1	B23A046	19-Jan-23	20-Jan-23	EPA 200.8/200.2	J
Zinc	72	5.0	ppb	"	"	"	"	"	

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Steve R Crupi, Quality Assurance Manager

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Analytical Data

Client: AKDEC Division of Water
Project: 2022 Kenai River Cu/Zn re-testing

Work Order: 2212014
Report Date: 01/30/23 17:13

Client Sample ID: RM 10.1 (Dissolved)
Lab Sample ID: 2212014-35
Date Collected: 09/08/22 15:00
Date Received: 12/05/22 15:00
Sampled By:
Temperature at Receipt: 19.3 degrees C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Copper	ND	21	ppb	1	B23A065	25-Jan-23	25-Jan-23	EPA 200.8/200.2	
Zinc	35	21	ppb	"	"	"	"	"	

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Analytical Data

Client: AKDEC Division of Water
Project: 2022 Kenai River Cu/Zn re-testing

Work Order: 2212014
Report Date: 01/30/23 17:13

Client Sample ID: RM 10.1 (Total)
Lab Sample ID: 2212014-36
Date Collected: 09/08/22 15:00
Date Received: 12/05/22 15:00
Sampled By:
Temperature at Receipt: 19.3 degrees C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Copper	ND	5.0	ppb	1	B23A046	19-Jan-23	20-Jan-23	EPA 200.8/200.2	
Zinc	65	5.0	ppb	"	"	"	"	"	

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Analytical Data

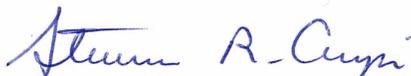
Client: AKDEC Division of Water
Project: 2022 Kenai River Cu/Zn re-testing

Work Order: 2212014
Report Date: 01/30/23 17:13

Client Sample ID: RM 23 (Dissolved)
Lab Sample ID: 2212014-37
Date Collected: 09/08/22 15:00
Date Received: 12/05/22 15:00
Sampled By:
Temperature at Receipt: 19.3 degrees C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Copper	ND	19	ppb	1	B23A065	25-Jan-23	25-Jan-23	EPA 200.8/200.2	
Zinc	31	19	ppb	"	"	"	"	"	

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Analytical Data

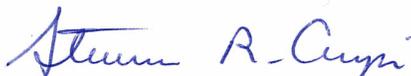
Client: AKDEC Division of Water
Project: 2022 Kenai River Cu/Zn re-testing

Work Order: 2212014
Report Date: 01/30/23 17:13

Client Sample ID: RM 23 (Total)
Lab Sample ID: 2212014-38
Date Collected: 09/08/22 15:00
Date Received: 12/05/22 15:00
Sampled By:
Temperature at Receipt: 19.3 degrees C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Copper	ND	5.0	ppb	1	B23A046	19-Jan-23	20-Jan-23	EPA 200.8/200.2	
Zinc	61	5.0	ppb	"	"	"	"	"	

Alaska State Environmental Health Laboratory



Steve R Crupi, Quality Assurance Manager

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Analytical Data

Client: AKDEC Division of Water
Project: 2022 Kenai River Cu/Zn re-testing

Work Order: 2212014
Report Date: 01/30/23 17:13

Client Sample ID: RM 40 DUP (Dissolved)
Lab Sample ID: 2212014-39
Date Collected: 09/08/22 15:00
Date Received: 12/05/22 15:00
Sampled By:
Temperature at Receipt: 19.3 degrees C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Copper	REJECTED	0.50	ppb	1	B23A055	19-Jan-23	19-Jan-23	EPA 200.8/200.2	
Zinc	REJECTED	0.50	ppb	"	"	"	"	"	

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Analytical Data

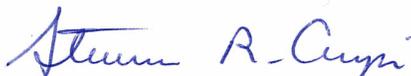
Client: AKDEC Division of Water
Project: 2022 Kenai River Cu/Zn re-testing

Work Order: 2212014
Report Date: 01/30/23 17:13

Client Sample ID: RM 40 DUP (Total)
Lab Sample ID: 2212014-40
Date Collected: 09/08/22 15:00
Date Received: 12/05/22 15:00
Sampled By:
Temperature at Receipt: 19.3 degrees C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Copper	ND	5.0	ppb	1	B23A046	19-Jan-23	20-Jan-23	EPA 200.8/200.2	
Zinc	99	10	ppb	2	"	"	23-Jan-23	"	

Alaska State Environmental Health Laboratory



Steve R Crupi, Quality Assurance Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Analytical Data

Client: AKDEC Division of Water
Project: 2022 Kenai River Cu/Zn re-testing

Work Order: 2212014
Report Date: 01/30/23 17:13

Client Sample ID: RM 12.5 (Dissolved)
Lab Sample ID: 2212014-41
Date Collected: 11/03/22 15:00
Date Received: 12/05/22 15:00
Sampled By:
Temperature at Receipt: 19.3 degrees C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Copper	REJECTED	0.50	ppb	1	B23A055	19-Jan-23	19-Jan-23	EPA 200.8/200.2	
Zinc	REJECTED	0.50	ppb	"	"	"	"	"	

Alaska State Environmental Health Laboratory



Steve R Crupi, Quality Assurance Manager

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Analytical Data

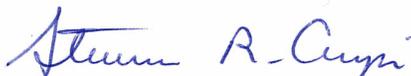
Client: AKDEC Division of Water
Project: 2022 Kenai River Cu/Zn re-testing

Work Order: 2212014
Report Date: 01/30/23 17:13

Client Sample ID: RM 12.5 (Total)
Lab Sample ID: 2212014-42
Date Collected: 11/03/22 15:00
Date Received: 12/05/22 15:00
Sampled By:
Temperature at Receipt: 19.3 degrees C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Copper	3.0	5.6	ppb	1	B23A060	24-Jan-23	25-Jan-23	EPA 200.8/200.2	J
Zinc	2.3	5.6	ppb	"	"	"	"	"	J

Alaska State Environmental Health Laboratory



Steve R Crupi, Quality Assurance Manager

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Analytical Data

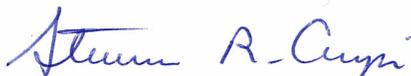
Client: AKDEC Division of Water
Project: 2022 Kenai River Cu/Zn re-testing

Work Order: 2212014
Report Date: 01/30/23 17:13

Client Sample ID: RM 12.5 DUP (Dissolved)
Lab Sample ID: 2212014-43
Date Collected: 11/03/22 15:00
Date Received: 12/05/22 15:00
Sampled By:
Temperature at Receipt: 19.3 degrees C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Copper	REJECTED	0.50	ppb	1	B23A055	19-Jan-23	19-Jan-23	EPA 200.8/200.2	
Zinc	REJECTED	0.50	ppb	"	"	"	"	"	

Alaska State Environmental Health Laboratory



Steve R Crupi, Quality Assurance Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Analytical Data

Client: AKDEC Division of Water
Project: 2022 Kenai River Cu/Zn re-testing

Work Order: 2212014
Report Date: 01/30/23 17:13

Client Sample ID: RM 12.5 DUP (Total)
Lab Sample ID: 2212014-44
Date Collected: 11/03/22 15:00
Date Received: 12/05/22 15:00
Sampled By:
Temperature at Receipt: 19.3 degrees C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Copper	2.6	5.0	ppb	1	B23A060	24-Jan-23	25-Jan-23	EPA 200.8/200.2	J
Zinc	1.7	5.0	ppb	"	"	"	"	"	J

Alaska State Environmental Health Laboratory



Steve R Crupi, Quality Assurance Manager

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Analytical Data

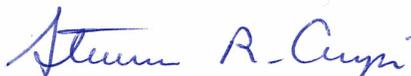
Client: AKDEC Division of Water
Project: 2022 Kenai River Cu/Zn re-testing

Work Order: 2212014
Report Date: 01/30/23 17:13

Client Sample ID: Field Blank (Dissolved)
Lab Sample ID: 2212014-45
Date Collected: 11/03/22 15:00
Date Received: 12/05/22 15:00
Sampled By:
Temperature at Receipt: 19.3 degrees C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Copper	REJECTED	0.50	ppb	1	B23A055	19-Jan-23	19-Jan-23	EPA 200.8/200.2	
Zinc	REJECTED	0.50	ppb	"	"	"	"	"	

Alaska State Environmental Health Laboratory



Steve R Crupi, Quality Assurance Manager

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Analytical Data

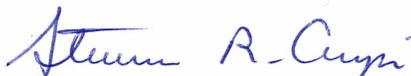
Client: AKDEC Division of Water
Project: 2022 Kenai River Cu/Zn re-testing

Work Order: 2212014
Report Date: 01/30/23 17:13

Client Sample ID: Field Blank (Total)
Lab Sample ID: 2212014-46
Date Collected: 11/03/22 15:00
Date Received: 12/05/22 15:00
Sampled By:
Temperature at Receipt: 19.3 degrees C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Copper	ND	5.0	ppb	1	B23A060	24-Jan-23	25-Jan-23	EPA 200.8/200.2	
Zinc	1.5	5.0	ppb	"	"	"	"	"	J

Alaska State Environmental Health Laboratory



Steve R Crupi, Quality Assurance Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Analytical Data

Client: AKDEC Division of Water
Project: 2022 Kenai River Cu/Zn re-testing

Work Order: 2212014
Report Date: 01/30/23 17:13

Client Sample ID: RM 70 (Dissolved)
Lab Sample ID: 2212014-47
Date Collected: 11/03/22 15:00
Date Received: 12/05/22 15:00
Sampled By:
Temperature at Receipt: 19.3 degrees C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Copper	REJECTED	0.50	ppb	1	B23A055	19-Jan-23	19-Jan-23	EPA 200.8/200.2	
Zinc	REJECTED	0.50	ppb	"	"	"	"	"	

Alaska State Environmental Health Laboratory



Steve R Crupi, Quality Assurance Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Analytical Data

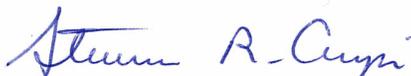
Client: AKDEC Division of Water
Project: 2022 Kenai River Cu/Zn re-testing

Work Order: 2212014
Report Date: 01/30/23 17:13

Client Sample ID: RM 70 (Total)
Lab Sample ID: 2212014-48
Date Collected: 11/03/22 15:00
Date Received: 12/05/22 15:00
Sampled By:
Temperature at Receipt: 19.3 degrees C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Copper	4.2	5.0	ppb	1	B23A060	24-Jan-23	25-Jan-23	EPA 200.8/200.2	J
Zinc	1.6	5.0	ppb	"	"	"	"	"	J

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Steve R Crupi, Quality Assurance Manager

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Analytical Data

Client: AKDEC Division of Water
Project: 2022 Kenai River Cu/Zn re-testing

Work Order: 2212014
Report Date: 01/30/23 17:13

Client Sample ID: RM 70 DUP (Dissolved)
Lab Sample ID: 2212014-49
Date Collected: 11/03/22 15:00
Date Received: 12/05/22 15:00
Sampled By:
Temperature at Receipt: 19.3 degrees C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Copper	REJECTED	0.50	ppb	1	B23A055	19-Jan-23	19-Jan-23	EPA 200.8/200.2	
Zinc	REJECTED	0.50	ppb	"	"	"	"	"	

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Steve R Crupi, Quality Assurance Manager

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Analytical Data

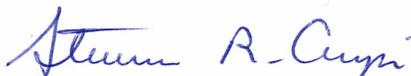
Client: AKDEC Division of Water
Project: 2022 Kenai River Cu/Zn re-testing

Work Order: 2212014
Report Date: 01/30/23 17:13

Client Sample ID: RM 70 DUP (Total)
Lab Sample ID: 2212014-50
Date Collected: 11/03/22 15:00
Date Received: 12/05/22 15:00
Sampled By:
Temperature at Receipt: 19.3 degrees C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Copper	2.6	6.1	ppb	1	B23A060	24-Jan-23	25-Jan-23	EPA 200.8/200.2	J
Zinc	1.5	6.1	ppb	"	"	"	"	"	J

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Steve R Crupi, Quality Assurance Manager

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Analytical Data

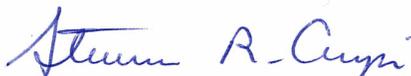
Client: AKDEC Division of Water
Project: 2022 Kenai River Cu/Zn re-testing

Work Order: 2212014
Report Date: 01/30/23 17:13

Client Sample ID: RM 23 (Dissolved)
Lab Sample ID: 2212014-51
Date Collected: 11/03/22 15:00
Date Received: 12/05/22 15:00
Sampled By:
Temperature at Receipt: 19.3 degrees C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Copper	REJECTED	0.50	ppb	1	B23A055	19-Jan-23	19-Jan-23	EPA 200.8/200.2	
Zinc	REJECTED	0.50	ppb	"	"	"	"	"	

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Steve R Crupi, Quality Assurance Manager

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Analytical Data

Client: AKDEC Division of Water
Project: 2022 Kenai River Cu/Zn re-testing

Work Order: 2212014
Report Date: 01/30/23 17:13

Client Sample ID: RM 23 (Total)
Lab Sample ID: 2212014-52
Date Collected: 11/03/22 15:00
Date Received: 12/05/22 15:00
Sampled By:
Temperature at Receipt: 19.3 degrees C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Copper	4.0	5.7	ppb	1	B23A060	24-Jan-23	25-Jan-23	EPA 200.8/200.2	J
Zinc	2.1	5.7	ppb	"	"	"	"	"	J

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Steve R Crupi, Quality Assurance Manager

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Analytical Data

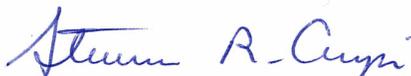
Client: AKDEC Division of Water
Project: 2022 Kenai River Cu/Zn re-testing

Work Order: 2212014
Report Date: 01/30/23 17:13

Client Sample ID: RM 23 DUP (Dissolved)
Lab Sample ID: 2212014-53
Date Collected: 11/03/22 15:00
Date Received: 12/05/22 15:00
Sampled By:
Temperature at Receipt: 19.3 degrees C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Copper	REJECTED	0.50	ppb	1	B23A055	19-Jan-23	19-Jan-23	EPA 200.8/200.2	
Zinc	REJECTED	0.50	ppb	"	"	"	"	"	

Alaska State Environmental Health Laboratory



Steve R Crupi, Quality Assurance Manager

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Analytical Data

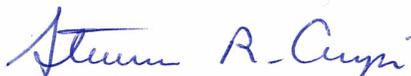
Client: AKDEC Division of Water
Project: 2022 Kenai River Cu/Zn re-testing

Work Order: 2212014
Report Date: 01/30/23 17:13

Client Sample ID: RM 23 DUP (Total)
Lab Sample ID: 2212014-54
Date Collected: 11/03/22 15:00
Date Received: 12/05/22 15:00
Sampled By:
Temperature at Receipt: 19.3 degrees C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Copper	2.5	5.0	ppb	1	B23A060	24-Jan-23	25-Jan-23	EPA 200.8/200.2	J
Zinc	1.8	5.0	ppb	"	"	"	"	"	J

Alaska State Environmental Health Laboratory



Steve R Crupi, Quality Assurance Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Analytical Data

Client: AKDEC Division of Water
Project: 2022 Kenai River Cu/Zn re-testing

Work Order: 2212014
Report Date: 01/30/23 17:13

Client Sample ID: RM 21 (Dissolved)
Lab Sample ID: 2212014-55
Date Collected: 11/03/22 15:00
Date Received: 12/05/22 15:00
Sampled By:
Temperature at Receipt: 19.3 degrees C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Copper	REJECTED	0.50	ppb	1	B23A055	19-Jan-23	19-Jan-23	EPA 200.8/200.2	
Zinc	REJECTED	0.50	ppb	"	"	"	"	"	

Alaska State Environmental Health Laboratory



Steve R Crupi, Quality Assurance Manager

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Analytical Data

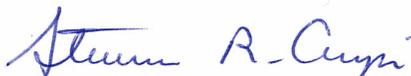
Client: AKDEC Division of Water
Project: 2022 Kenai River Cu/Zn re-testing

Work Order: 2212014
Report Date: 01/30/23 17:13

Client Sample ID: RM 21 (Total)
Lab Sample ID: 2212014-56
Date Collected: 11/03/22 15:00
Date Received: 12/05/22 15:00
Sampled By:
Temperature at Receipt: 19.3 degrees C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Copper	3.7	5.0	ppb	1	B23A060	24-Jan-23	25-Jan-23	EPA 200.8/200.2	J
Zinc	1.9	5.0	ppb	"	"	"	"	"	J

Alaska State Environmental Health Laboratory



Steve R Crupi, Quality Assurance Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Analytical Data

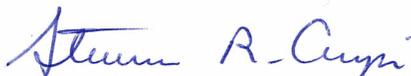
Client: AKDEC Division of Water
Project: 2022 Kenai River Cu/Zn re-testing

Work Order: 2212014
Report Date: 01/30/23 17:13

Client Sample ID: RM 21 DUP (Dissolved)
Lab Sample ID: 2212014-57
Date Collected: 11/03/22 15:00
Date Received: 12/05/22 15:00
Sampled By:
Temperature at Receipt: 19.3 degrees C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Copper	REJECTED	0.50	ppb	1	B23A055	19-Jan-23	19-Jan-23	EPA 200.8/200.2	
Zinc	REJECTED	0.50	ppb	"	"	"	"	"	

Alaska State Environmental Health Laboratory



Steve R Crupi, Quality Assurance Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Analytical Data

Client: AKDEC Division of Water
Project: 2022 Kenai River Cu/Zn re-testing

Work Order: 2212014
Report Date: 01/30/23 17:13

Client Sample ID: RM 21 DUP (Total)
Lab Sample ID: 2212014-58
Date Collected: 11/03/22 15:00
Date Received: 12/05/22 15:00
Sampled By:
Temperature at Receipt: 19.3 degrees C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Copper	2.3	5.0	ppb	1	B23A060	24-Jan-23	25-Jan-23	EPA 200.8/200.2	J
Zinc	1.5	5.0	ppb	"	"	"	"	"	J

Alaska State Environmental Health Laboratory



Steve R Crupi, Quality Assurance Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Analytical Data

Client: AKDEC Division of Water
Project: 2022 Kenai River Cu/Zn re-testing

Work Order: 2212014
Report Date: 01/30/23 17:13

Client Sample ID: RM 70 (Dissolved)
Lab Sample ID: 2212014-59
Date Collected: 09/08/22 15:00
Date Received: 12/13/22 14:50
Sampled By:
Temperature at Receipt: 19.3 degrees C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Copper	ND	14	ppb	1	B23A065	25-Jan-23	25-Jan-23	EPA 200.8/200.2	
Zinc	53	14	ppb	"	"	"	"	"	

Alaska State Environmental Health Laboratory



Steve R Crupi, Quality Assurance Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Analytical Data

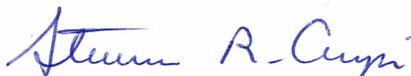
Client: AKDEC Division of Water
Project: 2022 Kenai River Cu/Zn re-testing

Work Order: 2212014
Report Date: 01/30/23 17:13

Client Sample ID: RM 70 Dup (Dissolved)
Lab Sample ID: 2212014-60
Date Collected: 09/08/22 15:00
Date Received: 12/13/22 14:50
Sampled By:
Temperature at Receipt: 19.3 degrees C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Copper	ND	7.0	ppb	1	B23A065	25-Jan-23	25-Jan-23	EPA 200.8/200.2	
Zinc	40	7.0	ppb	"	"	"	"	"	

Alaska State Environmental Health Laboratory



Steve R Crupi, Quality Assurance Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Analytical Data

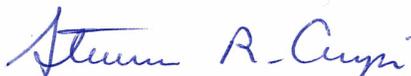
Client: AKDEC Division of Water
Project: 2022 Kenai River Cu/Zn re-testing

Work Order: 2212014
Report Date: 01/30/23 17:13

Client Sample ID: Fielde Blank (Dissolved)
Lab Sample ID: 2212014-61
Date Collected: 09/08/22 15:00
Date Received: 12/13/22 14:50
Sampled By:
Temperature at Receipt: 19.3 degrees C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Copper	ND	7.0	ppb	1	B23A065	25-Jan-23	25-Jan-23	EPA 200.8/200.2	
Zinc	54	7.0	ppb	"	"	"	"	"	

Alaska State Environmental Health Laboratory



Steve R Crupi, Quality Assurance Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Analytical Data

Client: AKDEC Division of Water
Project: 2022 Kenai River Cu/Zn re-testing

Work Order: 2212014
Report Date: 01/30/23 17:13

Client Sample ID: RM 82.1 DUP (Dissolved)
Lab Sample ID: 2212014-62
Date Collected: 09/08/22 15:00
Date Received: 12/13/22 14:50
Sampled By:
Temperature at Receipt: 19.3 degrees C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Copper	ND	6.9	ppb	1	B23A065	25-Jan-23	25-Jan-23	EPA 200.8/200.2	
Zinc	64	6.9	ppb	"	"	"	"	"	

Alaska State Environmental Health Laboratory



Steve R Crupi, Quality Assurance Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Analytical Data

Client: AKDEC Division of Water
Project: 2022 Kenai River Cu/Zn re-testing

Work Order: 2212014
Report Date: 01/30/23 17:13

Client Sample ID: RM 40 (Dissolved)
Lab Sample ID: 2212014-63
Date Collected: 09/08/22 15:00
Date Received: 12/13/22 14:50
Sampled By:
Temperature at Receipt: 19.3 degrees C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Copper	16	15	ppb	1	B23A065	25-Jan-23	26-Jan-23	EPA 200.8/200.2	
Zinc	39	15	ppb	"	"	"	"	"	

Alaska State Environmental Health Laboratory



Steve R Crupi, Quality Assurance Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Analytical Data

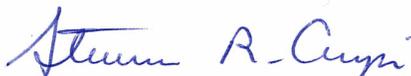
Client: AKDEC Division of Water
Project: 2022 Kenai River Cu/Zn re-testing

Work Order: 2212014
Report Date: 01/30/23 17:13

Client Sample ID: RM 40 Dup (Dissolved)
Lab Sample ID: 2212014-64
Date Collected: 09/08/22 15:00
Date Received: 12/13/22 14:50
Sampled By:
Temperature at Receipt: 19.3 degrees C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Copper	ND	20	ppb	1	B23A065	25-Jan-23	26-Jan-23	EPA 200.8/200.2	
Zinc	52	20	ppb	"	"	"	"	"	

Alaska State Environmental Health Laboratory



Steve R Crupi, Quality Assurance Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Analytical Data

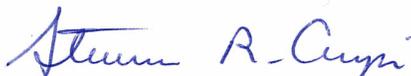
Client: AKDEC Division of Water
Project: 2022 Kenai River Cu/Zn re-testing

Work Order: 2212014
Report Date: 01/30/23 17:13

Client Sample ID: RM 12.75 (Dissolved)
Lab Sample ID: 2212014-65
Date Collected: 09/08/22 15:00
Date Received: 12/13/22 14:50
Sampled By:
Temperature at Receipt: 19.3 degrees C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Copper	ND	9.5	ppb	1	B23A065	25-Jan-23	26-Jan-23	EPA 200.8/200.2	
Zinc	49	9.5	ppb	"	"	"	"	"	

Alaska State Environmental Health Laboratory



Steve R Crupi, Quality Assurance Manager

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Analytical Data

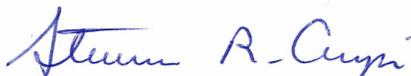
Client: AKDEC Division of Water
Project: 2022 Kenai River Cu/Zn re-testing

Work Order: 2212014
Report Date: 01/30/23 17:13

Client Sample ID: RM 76 (Dissolved)
Lab Sample ID: 2212014-66
Date Collected: 09/08/22 15:00
Date Received: 12/13/22 14:50
Sampled By:
Temperature at Receipt: 19.3 degrees C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Copper	ND	7.2	ppb	1	B23A065	25-Jan-23	26-Jan-23	EPA 200.8/200.2	
Zinc	44	7.2	ppb	"	"	"	"	"	

Alaska State Environmental Health Laboratory



Steve R Crupi, Quality Assurance Manager

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Metals - Quality Control

Alaska State Environmental Health Laboratory

Work Order: 2212014

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B23A045 - EPA 200.2										
Blank (B23A045-BLK1)										
					Prepared: 18-Jan-23 Analyzed: 19-Jan-23					
Copper	ND	5.0	ppb							
Zinc	ND	5.0	"							
LCS (B23A045-BS1)										
					Prepared: 18-Jan-23 Analyzed: 19-Jan-23					
Copper	50	5.0	ppb	49.880		100	85-115			
Zinc	49	5.0	"	49.880		97	85-115			
LCS Dup (B23A045-BSD1)										
					Prepared: 18-Jan-23 Analyzed: 19-Jan-23					
Zinc	86	5.0	ppb	49.662		173*	85-115	55*	20	
Copper	51	5.0	"	49.662		103	85-115	3	20	
MRL Check (B23A045-MRL1)										
					Prepared: 18-Jan-23 Analyzed: 19-Jan-23					
Zinc	3.1	5.0	ppb	2.4856		125	0-200			J
Copper	3.1	5.0	"	2.4856		125	0-200			J
MRL Check (B23A045-MRL2)										
					Prepared: 18-Jan-23 Analyzed: 19-Jan-23					
Zinc	2.9	5.0	ppb	2.4777		118	0-200			J
Copper	2.9	5.0	"	2.4777		119	0-200			J
MRL Check (B23A045-MRL3)										
					Prepared: 18-Jan-23 Analyzed: 19-Jan-23					
Zinc	3.1	5.0	ppb	2.5000		125	0-200			J
Copper	3.8	5.0	"	2.5000		153	0-200			J
MRL Check (B23A045-MRL4)										
					Prepared: 18-Jan-23 Analyzed: 19-Jan-23					
Zinc	5.7	5.0	ppb	2.4920		227*	0-200			
Copper	3.0	5.0	"	2.4920		122	0-200			J
MRL Check (B23A045-MRL5)										
					Prepared: 18-Jan-23 Analyzed: 19-Jan-23					
Copper	3.0	5.0	ppb	2.4792		121	0-200			J
Zinc	2.9	5.0	"	2.4792		117	0-200			J

Alaska State Environmental Health Laboratory



Steve R Crupi, Quality Assurance Manager

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Metals - Quality Control
Alaska State Environmental Health Laboratory

Work Order: 2212014

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	Limits	RPD	RPD Limit	Notes
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Batch B23A045 - EPA 200.2

MRL Check (B23A045-MRL6)				Prepared: 18-Jan-23 Analyzed: 19-Jan-23						
Copper	4.4	5.0	ppb	2.4886		175	0-200			J
Zinc	3.2	5.0	"	2.4886		130	0-200			J
MRL Check (B23A045-MRL7)				Prepared: 18-Jan-23 Analyzed: 19-Jan-23						
Copper	2.9	5.0	ppb	2.4861		116	0-200			J
Zinc	2.9	5.0	"	2.4861		117	0-200			J
MRL Check (B23A045-MRL8)				Prepared: 18-Jan-23 Analyzed: 19-Jan-23						
Copper	3.0	5.0	ppb	2.4811		120	0-200			J
Zinc	2.7	5.0	"	2.4811		110	0-200			J

Batch B23A046 - EPA 200.2

Blank (B23A046-BLK1)				Prepared: 19-Jan-23 Analyzed: 20-Jan-23						
Zinc	ND	5.0	ppb							
Copper	ND	5.0	"							
LCS (B23A046-BS1)				Prepared: 19-Jan-23 Analyzed: 20-Jan-23						
Zinc	51	5.0	ppb	49.831		103	85-115			
Copper	52	5.0	"	49.831		104	85-115			
LCS (B23A046-BS2)				Prepared: 19-Jan-23 Analyzed: 20-Jan-23						
Copper	51	5.0	ppb	49.751		102	85-115			
Zinc	50	5.0	"	49.751		100	85-115			
LCS (B23A046-BS3)				Prepared: 19-Jan-23 Analyzed: 20-Jan-23						
Zinc	50	5.0	ppb	49.731		100	85-115			
Copper	50	5.0	"	49.731		101	85-115			

Alaska State Environmental Health Laboratory

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Steve R Crupi, Quality Assurance Manager

Metals - Quality Control
Alaska State Environmental Health Laboratory

Work Order: 2212014

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
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Batch B23A046 - EPA 200.2

LCS (B23A046-BS4)

Prepared: 19-Jan-23 Analyzed: 20-Jan-23

Copper	51	5.0	ppb	49.731		102	85-115		
Zinc	50	5.0	"	49.731		100	85-115		

MRL Check (B23A046-MRL1)

Prepared: 19-Jan-23 Analyzed: 20-Jan-23

Copper	4.6	5.0	ppb	2.4782		186	0-200		J
Zinc	2.7	5.0	"	2.4782		110	0-200		J

Batch B23A060 - EPA 200.2

Blank (B23A060-BLK1)

Prepared: 24-Jan-23 Analyzed: 25-Jan-23

Copper	ND	5.0	ppb						
Zinc	ND	5.0	"						

LCS (B23A060-BS1)

Prepared: 24-Jan-23 Analyzed: 25-Jan-23

Zinc	49	5.0	ppb	49.910		99	85-115		
Copper	49	5.0	"	49.910		99	85-115		

LCS Dup (B23A060-BSD1)

Prepared: 24-Jan-23 Analyzed: 25-Jan-23

Zinc	48	5.0	ppb	49.960		96	85-115	2	20
Copper	49	5.0	"	49.960		98	85-115	0.9	20

MRL Check (B23A060-MRL1)

Prepared: 24-Jan-23 Analyzed: 25-Jan-23

Copper	ND	5.1	ppb	0.24980		0-200			
Zinc	ND	5.1	"	0.24980		0-200			

Batch B23A065 - EPA 200.2

Blank (B23A065-BLK1)

Prepared & Analyzed: 25-Jan-23

Copper	ND	5.0	ppb						
Zinc	ND	5.0	"						

Alaska State Environmental Health Laboratory

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Steve R Crupi, Quality Assurance Manager

Metals - Quality Control
Alaska State Environmental Health Laboratory

Work Order: 2212014

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B23A065 - EPA 200.2

Blank (B23A065-BLK2)

Prepared & Analyzed: 25-Jan-23

Copper	ND	5.1	ppb							
Zinc	2.3	5.1	"							J

LCS (B23A065-BS1)

Prepared & Analyzed: 25-Jan-23

Copper	51	5.0	ppb	49.930		103	85-115			
Zinc	53	5.0	"	49.930		106	85-115			

LCS Dup (B23A065-BSD1)

Prepared & Analyzed: 25-Jan-23

Copper	48	5.1	ppb	49.910		97	85-115	6	20	
Zinc	47	5.1	"	49.910		95	85-115	11	20	

MRL Check (B23A065-MRL1)

Prepared & Analyzed: 25-Jan-23

Zinc	ND	5.0	ppb	0.24905			0-200			
Copper	ND	5.0	"	0.24905			0-200			

Alaska State Environmental Health Laboratory

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Steve R Crupi, Quality Assurance Manager

Chain of Custody Record



Client Contact		Project Manager:		Site Contact:		Date:		Environmental Health Laboratory															
John Clark		Tel/Fax:		Lab Contact: Emanuel Hignutt		Carrier:		COC No: _____ of _____ COCs															
john.clark@alaska.gov		Analysis Turnaround Time		Dissolved Cu & Zn (filtered and HNO3 preserved bottles)		Total Cu & Zn (HNO3 preserved bottles)												Job No.					
Project Name:		Calendar (C) or Work Days (W)																Comments:					
Project Number:		TAT if different from Below 3 DAY																2212014					
		<input type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day																					
Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.														Sample Specific Notes:				
RM 70	9/8/22		Water		2	X	X												Preservation HNO3 -59				
RM 70 Dup	9/8/22		Water		2	X	X												Preservation HNO3 -60				
Field Blank	9/8/22		Water		2	X	X												Preservation HNO3 -61				
RM 82.1 Dup	9/8/22		Water		2	X	X												Preservation HNO3 -62				
RM 40	9/8/22		Water		2	X	X												Preservation HNO3 -63				
RM 40 Dup	9/8/22		Water		2	X	X												Preservation HNO3 -64				
RM 12.75	9/8/22		Water		2	X	X												Preservation HNO3 -65				
RM 76	9/8/22		Water		2	X	X												Preservation HNO3 -66				
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____ Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months																							
Special Instructions/QC Requirements & Comments: Carpet samples to be combined for composite (ie CP3S1 + CP3S2 + CP3S3 = composite sample CP3)																							
Relinquished by:		Company:		Date/Time:		Received by:		Company:		Date/Time:		Relinquished by:		Company:		Date/Time:		Received by:		Company:		Date/Time:	
<i>[Signature]</i>		DEC Dow		12/15/22 2:50		<i>[Signature]</i>		EHL		12/13/22 @ 1450													
Relinquished by:		Company:		Date/Time:		Received by:		Company:		Date/Time:		Relinquished by:		Company:		Date/Time:		Received by:		Company:		Date/Time:	



ADEC EHL Sample Receipt Checklist

(form SC-11, rev 05/13/22)

Environmental Health Laboratory
5251 Dr. MLK Jr. Ave., Anchorage, AK 99507
(907) 375-8200



WO #: 2212014
Client: Dow

of Samples: 16 bottles; 8 samples
Sample Matrix: water

COC Seals:

- On Shipping Container Intact? Y/N
- On Sample Packaging Intact? Y/N
- None

Received via:

- USPS
- UPS
- FedEx

- Delivered by Client/Client Courier
- Courier Shipper: _____
- Other _____

Shipment Tracking # NA

Sample Temperature @ Receipt: 18.4 °C

Thermometer ID (circle one): A19E080 calibration due 3/8/2023

Other: _____

Shipping Container Type:

- Box
- Cooler
- Envelope
- Hand Carry
- Styro-Box
- Other _____

Sample Packaging Type:

- Plastic/Ziploc Bag
- Plastic/Glass Vial/Jar
- Whirl Pak Bag
- Vacuum Packaging
- Commercial Packaging
- Blood Tubes
- Other _____

Refrigerant:

- Dry Ice
- Gel/Ice Pack
- Water Ice
- Other _____
- None
- Notes: _____

Sample(s) and Sample Containers:

- | | | | | | |
|-----------------------------|---------------------------------------|----------------------------|----------------------------|---------------------------------------|----------------------------|
| Intact? | Y <input checked="" type="checkbox"/> | N <input type="checkbox"/> | Properly Preserved? | Y <input checked="" type="checkbox"/> | N <input type="checkbox"/> |
| Correct Type? | Y <input checked="" type="checkbox"/> | N <input type="checkbox"/> | Meets Temp Requirements? | Y <input checked="" type="checkbox"/> | N <input type="checkbox"/> |
| IDs/Times/Dates Match Form? | Y <input checked="" type="checkbox"/> | N <input type="checkbox"/> | Adequate Amount for Tests? | Y <input checked="" type="checkbox"/> | N <input type="checkbox"/> |

Sample Submission Form:

- Sample Submission Form Complete? Y N
- Client Contacted Regarding Incomplete Data? N Y Provide details below in "Comments" section.

Comments: Per John only need to do dissolved
from COC if already have totals.
Samples were not tested for pH at receipt, but
HDD₃ is labeled on the bottle. KAs 12/13/22
Samples logged w/ same time as original
samples KAs 12/13/22. Totals rec 12/13/22 added
as additional use to original sample KAs 12/13/22

Crupi, Steve R (DEC)

From: Crupi, Steve R (DEC)
Sent: Tuesday, December 6, 2022 9:54 AM
To: Clark, John M (DEC)
Cc: DEC.EHL.Reports
Subject: RE: Sample Received: WO# 2212014

John,
We'll hold off on testing until you can deliver the dissolved metals "replacement" bottles. I've marked the three samples (70 Dup, 82.1 Dup, and 76) for staff to reject. So, we are rejecting a total of eight dissolved metals samples.
Steve

From: Clark, John M (DEC) <john.clark@alaska.gov>
Sent: Tuesday, December 6, 2022 9:35 AM
To: Crupi, Steve R (DEC) <steve.crupi@alaska.gov>
Cc: DEC.EHL.Reports <DEC.EHL.Reports@alaska.gov>
Subject: RE: Sample Received: WO# 2212014

I should have those in the fridge in at the office. At least SGS gave us all of those. I agree to avoid anything borderline if we can. I can pull them and get it over to you on Thursday if that works for you.

From: Crupi, Steve R (DEC) <steve.crupi@alaska.gov>
Sent: Tuesday, December 6, 2022 9:17 AM
To: Clark, John M (DEC) <john.clark@alaska.gov>
Cc: DEC.EHL.Reports <DEC.EHL.Reports@alaska.gov>
Subject: RE: Sample Received: WO# 2212014

John,

If you have 25 mL dissolved metals volume or more of 70 Dup, 82.1 Dup, and 76, I'd rather test that than the unpreserved volume we have here. What we have is borderline.

I guess let me know what you find when you get the bottles, hopefully today.

Steve

From: Clark, John M (DEC) <john.clark@alaska.gov>
Sent: Tuesday, December 6, 2022 7:53 AM
To: Crupi, Steve R (DEC) <steve.crupi@alaska.gov>
Cc: DEC.EHL.Reports <DEC.EHL.Reports@alaska.gov>
Subject: RE: Sample Received: WO# 2212014

Go with RM 12.75 for the samples.

Let me check a little more with Terri on the other samples but I think she is leaning with potentially using the filtered preserved samples we have from SGS of the rejected ones you have. She is okay with just even verifying the SGS results at this point. What might take a bit on my end is that SGS just put their internal lab ID on the bottles. I have those it will just take a little time to go through them and get the correct ones.

I'll also pull the 70Dup, 82.1 Dup, and 76 if your staff decide to also reject those. Or let me know what works best for you and your staff and I'll do that.

I can drop off the other bottles on Thursday if that works for you.

Cheers

John

John Clark
Quality Assurance Officer
Water Quality Standards, Assessment and Restoration
Alaska Department of Environmental Conservation
john.clark@alaska.gov
907-269-3066

From: Crupi, Steve R (DEC) <steve.crupi@alaska.gov>
Sent: Monday, December 5, 2022 4:32 PM
To: Clark, John M (DEC) <john.clark@alaska.gov>
Cc: DEC.EHL.Reports <DEC.EHL.Reports@alaska.gov>
Subject: FW: Sample Received: WO# 2212014

Hey John,

See detail below and attached.

Dissolved metals for RM70, Field Blank, RM40, RM12.75, and RM40 Dup will be rejected outright for insufficient sample volume.

Dissolved metals for RM70 Dup, RM82.1 Dup, and RM76 may or may not get tested. I am letting the chemistry staff determine if sufficient volume.

On the COC, samples RM12.5 and RM12.5 Dup on the COC are labeled as RM12.75 and RM12.75 dup, respectively, on the bottle labels. Which IDs are correct?

Steve

Steven R. Crupi
Quality Systems Manager, Environmental Health Laboratory
Project Manager
Safety Officer
Alaska Department of Environmental Conservation
5251 Dr. MLK Jr Ave, Anchorage, AK 99507
Phone 907.375.7799 / Fax 907.929.7335
email: steve.crupi@alaska.gov



From: Crupi, Steve R (DEC) <steve.crupi@alaska.gov>
Sent: Monday, December 5, 2022 4:20 PM
To: DEC EH - Lab - Shipping Receiving <DEC.EH-Lab-ShippingReceiving@alaska.gov>
Subject: Sample Received: WO# 2212014

SAMPLE TYPE	Water
NUMBER of SAMPLES	49 bottles, 58 logged samples
REQUIRED TEST	200.8 Zinc and Copper
CLIENT	AKDEC Division of Water
WHEN COLLECTED	9/8/22 and 11/3/22
TEMPERATURE UPON RECEIPT (degrees C)	19.3
CURRENT LOCATION	Walk In Refrigerator

Notes:

- All bottles intended for filtration for dissolved metals have a label to that effect taped over the bottle cap. In all cases for dissolved metals, there is less than 50 mL of sample volume available. The client understands this scenario raises the reporting limit.
- Reject samples 1, 13, 19, 21, and 39, all dissolved metals samples, due to insufficient sample volume. Reject labels are taped over the cap.
- Samples 3, 7, and 9 are questionable in terms of available volume for filtering for dissolved metals. If determine insufficient sample volume, proceed with rejecting sample. ?-mark labels are placed over the cap.
- 9 amber sample containers comprise samples 41 – 58, one bottle per two sample numbers (dissolved and total). Filter half of the volume for dissolved metals and preserve the balance for total metals.
- A field ID discrepancy exists for samples 41 - 44, which will be addressed with the client on 12/6/22.

Let me know if questions.

Steve

Steven R. Crupi
Quality Systems Manager, Environmental Health Laboratory
Project Manager
Safety Officer
Alaska Department of Environmental Conservation
5251 Dr. MLK Jr Ave, Anchorage, AK 99507
Phone 907.375.7799 / Fax 907.929.7335
email: steve.crupi@alaska.gov



Chain of Custody Record



W0# 2212014 P.1

Environmental Health Laboratory

Client Contact		Project Manager:				Site Contact:				Date: 12-5-22				COC No:	
John Clark		Tel/Fax:				Lab Contact: Emanuel Hignutt				Carrier:				1 of 2 COCs	
		Analysis Turnaround Time				Dissolved Cu and Zn Total Cu and Zn preserved with HNO3								Job No.	
		Calendar (C) or Work Days (W)												Comments:	
		TAT if different from Below 3 DAY													
Project Name:		<input type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day													
Project Number:		Sample Date		Sample Time		Sample Type		Matrix		# of Cont.		Sample Specific Notes:			
2212014		9/8/22				Water				2					
-01, -02		9/8/22				Water				2					
-03, -04		9/8/22				Water				2					
-05, -06		9/8/22				Water				2					
-07, -08		9/8/22				Water				2					
-09, -10		9/8/22				Water				2					
11, -12		9/8/22				Water				2					
-13, -14		9/8/22				Water				2					
-15, -16		9/8/22				Water				2					
-17, -18		9/8/22				Water				2					
-19, -20		9/8/22				Water				2					
-21, -22		9/8/22				Water				2					
-23, -24		9/8/22				Water				2					
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other						Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)									
<input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown						<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months									
Special Instructions/QC Requirements & Comments: Carpet samples to be combined for composite (ie CP3S1 + CP3S2 + CP3S3 = composite sample CP3)															
Relinquished by:		Company:		Date/Time:		Received by:		Company:		Date/Time:					
<i>[Signature]</i>		DEC		12/5/22 3:00		<i>[Signature]</i>		EHL		12/5/22 15:00					
Relinquished by:		Company:		Date/Time:		Received by:		Company:		Date/Time:					
Relinquished by:		Company:		Date/Time:		Received by:		Company:		Date/Time:					

Dissolved ↑
 Total ↑

Chain of Custody Record



WO# 2212014
 p.2

Environmental Health Laboratory

Client Contact		Project Manager:				Site Contact:				Date: 12-5-22				COC No:			
John Clark		Tel/Fax:				Lab Contact: Emanuel Hignutt				Carrier:				2 of 2 COCs			
		Analysis Turnaround Time				Dissolved Cu and Zn Total Cu and Zn preserved with HNO3								Job No.			
		Calendar (C) or Work Days (W) _____															
		TAT if different from Below 3 DAY															
		<input type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day															
Project Name:		Sample Date		Sample Time		Sample Type		Matrix		# of Cont.		Sample Specific Notes:					
Project Number:		9/8/22				Water				2							
		9/8/22				Water				2							
		9/8/22				Water				2							
		9/8/22				Water				2							
		9/8/22				Water				2							
		9/8/22				Water				2							
		9/8/22				Water				2							
		9/8/22				Water				2							
		9/8/22				Water				2							
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____						Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)											
Possible Hazard Identification						Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)											
<input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown						<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months											
Special Instructions/QC Requirements & Comments: Carpet samples to be combined for composite (ie CP3S1 + CP3S2 + CP3S3 = composite sample CP3)																	
Relinquished by:		Company:		Date/Time:		Received by:		Company:		Date/Time:							
<i>[Signature]</i>		DEC		12/5 3pm		<i>[Signature]</i>		EHL		12/5/22 3:00pm							
Relinquished by:		Company:		Date/Time:		Received by:		Company:		Date/Time:							
Relinquished by:		Company:		Date/Time:		Received by:		Company:		Date/Time:							

2212014
 -25, -26
 -27, -28
 -29, -30
 -31, -32
 -33, -34
 -35, -36
 -37, -38
 -39, -40
 Dissolved →
 Total ↑

Chain of Custody Record



WO# 2212014

P.3

Environmental Health Laboratory

Client Contact		Project Manager:				Site Contact:				Date: 12-5-22				COC No:			
John Clark		Tel/Fax:				Lab Contact: Emanuel Hignutt				Carrier:				1 of 1 COCs			
DEC DOW		Analysis Turnaround Time				Dissolved Cu and Zn Total Cu and Zn								Job No.			
john.clark@alaska.gov		Calendar (C) or Work Days (W)															
		TAT if different from Below 3 DAY															
Project Name:		<input type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day															
Project Number:										Comments:							
										Sample Specific Notes:							
Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.												
RM 12.5	11/3/22		water		1	x	x									Actual SRC 12.5 Label 12.75	
RM 12.5 DUP	11/3/22		water		1	x	x									Label 12.75 DUP	
Field Blank	11/3/22		water		1	x	x										
RM 70	11/3/22		water		1	x	x										
RM 70 DUP	11/3/22		water		1	x	x										
RM 23	11/3/22		water		1	x	x										
RM 23 DUP	11/3/22		water		1	x	x										
RM 21	11/3/22		water		1	x	x										
RM 21 DUP	11/3/22		water		1	x	x										
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other																	
Possible Hazard Identification						Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)											
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown						<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months											
Please run both total and dissolved metals (filtered).																	
Relinquished by:		Company:		Date/Time:		Received by:		Company:		Date/Time:							
<i>[Signature]</i>		DEC		12/5/22		<i>[Signature]</i>		EHL		12/5/22 15:00							
Relinquished by:		Company:		Date/Time:		Received by:		Company:		Date/Time:							
Relinquished by:		Company:		Date/Time:		Received by:		Company:		Date/Time:							

2212014
 -41, -42
 -43, -44
 -45, -46
 -47, -48
 -49, -50
 -51, -52
 -53, -54
 -55, -56
 -57, -58
 ↑
 ↑
 Discarded
 Total



ADEC EHL Sample Receipt Checklist

(form SC-11, rev 05/13/22)

Environmental Health Laboratory
5251 Dr. MLK Jr. Ave., Anchorage, AK 99507
(907) 375-8200



WO #: 2212014

of Samples: 49

Client: AKDEC Division of water

Sample Matrix: water

COC Seals:

- On Shipping Container Intact? Y/N
- On Sample Packaging Intact? Y/N
- None

Received via:

- USPS
- UPS
- FedEx

- Delivered by Client/Client Courier
- Courier Shipper: _____
- Other _____

Shipment Tracking # _____

Sample Temperature @ Receipt: 19.3 °C

Thermometer ID (circle one): A19E080, calibration due 3/8/2023

Other: _____

Shipping Container Type:

- Box
- Cooler
- Envelope
- Hand Carry
- Styro-Box
- Other _____

Sample Packaging Type:

- Plastic/Ziploc Bag
- Plastic/Glass Vial/Jar
- Whirl Pak Bag
- Vacuum Packaging
- Commercial Packaging
- Blood Tubes
- Other _____

Refrigerant:

- Dry Ice
- Gel/Ice Pack
- Water Ice
- Other _____
- None
- Notes: _____

Sample(s) and Sample Containers:

- | | | | | |
|-----------------------------|---|-------------------------------------|---|-------------------------------------|
| Intact? | Y | <input checked="" type="checkbox"/> | N | <input type="checkbox"/> |
| Correct Type? | Y | <input checked="" type="checkbox"/> | N | <input type="checkbox"/> |
| IDs/Times/Dates Match Form? | Y | <input type="checkbox"/> | N | <input checked="" type="checkbox"/> |

- | | | | | |
|----------------------------|---|-------------------------------------|---|-------------------------------------|
| Properly Preserved? | Y | <input checked="" type="checkbox"/> | N | <input type="checkbox"/> |
| Meets Temp Requirements? | Y | <input checked="" type="checkbox"/> | N | <input type="checkbox"/> |
| Adequate Amount for Tests? | Y | <input type="checkbox"/> | N | <input checked="" type="checkbox"/> |

For Nov. collection RM 12.5 + RM 12.5 Dup on COC (labeled as 12.75 and 12.75 Dup on bottle. see 12/6/22)

~~Side 12.5 + 12.5 Dup on COC are related as 12.75 + 12.75 Dup on labels.~~

Sample Submission Form:

- Sample Submission Form Complete? Y N
- Client Contacted Regarding Incomplete Data? N Y Provide details below in "Comments" section.

Comments: Log each sample twice: dissolved + total. due 12/1/22

20 day TAT

Reject for dissolved RM 70, Field Blank, RM 40, RM 12.75

RM 40 Dup for insufficient volume. Samples RM 70 Dup,

RM 82.1 Dup, RM 76 questionable for sufficient volume for dissolved metals.